2.4.5 Энергетические системы и комплексы (технические науки)

OPTIMIZATION OF THE COMPOSITION OF AUTONOMOUS SYSTEMS EQUIPPED WITH SOLAR PHOTOVOLTAIC POWER STATION AND DIESEL GENERATOR

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Abstract. *Currently, one of the main directions of energy sector development worldwide, including in the Republic of Uzbekistan, is related to the integration of solar photovoltaic power stations into electrical energy systems. Designing electrical systems with such stations should be based on selecting the optimal composition of the elements, considering the long-term operational conditions. Despite the existence of a number of works dedicated to solving this problem, mathematical models and algorithms for selecting the optimal composition of elements, taking into account all influencing factors, have not yet been sufficiently developed. This article proposes a mathematical model and solution algorithm for an autonomous electrical energy system equipped with a solar photovoltaic power station and a diesel generator.*

Keywords: *Photovoltaic station, diesel generator, battery storage, solar panel, capital investment, operational costs, mathematical model, optimization algorithm.*